New England Bioassay
A Division of GZA

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION MANAGEMENT

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CHRONIC AQUATIC TOXICITY TEST REPORT

Patriot Beverages
Littleton, Massachusetts

Pimephales promelas Larval Survival and Growth Test – EPA 1000.0

EPA 821-R-02-013, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms", Fourth Edition

Test Start Date: 4/2/18

Test Period: April 2018

Report Prepared by:

New England Bioassay
A Division of GZA GeoEnvironmental, Inc.
77 Batson Drive
Manchester, CT 06042

NEB Project Number: 05.0044697.00

Report Date: May 3, 2018

Report Submitted to:

Patriot Beverages
20 Harvard Road
Littleton, MA 01460

Sample ID: Outfall 001

Facility Name: Patriot Beverages Test Start Date: 4/2/18
NPDES Permit Number: MA 0004936 Outfall Number: 001

Test Type	Test Species	Sample Type	Sample Method
_ Acute	X Fathead Minnow	_ Prechlorinated	_ Grab
_ Chronic	_ Ceriodaphnia Dubia	_ Dechlorinated	X Composite
X Modified	_ Daphnia Pulex	X Unchlorinated	_ Flow-thru
(Chronic reporting	_ Mysid Shrimp	_ Chlorinated	_ Other
LC50 values)	_ Sheepshead		
_ 24-Hour Screening	_ Menidia		
	_ Sea Urchin	TRC conc. 0.027 mg/L	
	_ Selenastrum		
	_Other		

Dilution Water

_ Receiving water collected at a point immediately upstream of or away from the discharge;
(Receiving water name and sampling location: Reedy Meadow Brook -see COC)
_ Alternate Surface Water of known quality and hardness to generally reflect the characteristics of the receiving water; (Surface water name:)
X Synthetic water prepared using either Millipore Mill-Q or equivalent deionized water and reagent grade chemicals; or deionized water combined with mineral water;
_ Artificial sea salts mixed with deionized water;
_ Other

Effluent Sampling Date (s): 4/1-2/18 4/3-4/18 4/5-6/18

Effluent Concentrations Tested (in%): 0 6.25 12.5 25 50 91 100
* (Permit Limit Concentration): 91% (C-NOEC)

Was effluent salinity adjusted? No
If yes, to what value? N/A ppt

Reference Toxicant test date: 4/3/18 Reference Toxicant Test Acceptable: Yes X No _

Age and Age Range of Test Organisms < 24 hours Source of Organisms NEB Lab

TEST RESULTS &PERMIT LIMITS

Test Acceptability Criteria

A. Synthetic Water Control
Mean Control Survival: 97.5% Mean Control Weight: 0.491 mg

B. Receiving Water Control
Mean Control Survival: 27.5% Mean Control Weight: 0.085 mg

C. Lab Culture Control Yes_ No X
Mean Control Survival: % Mean Control Weight: mg

D. Thiosulfate Control Yes_ No X
Mean Control Survival: % Mean Control Weight: mg

Test Variability

Test PMSD (growth) 12.4% Upper and Lower PMSD bound 12-30% low__ in-bounds X high___
Test PMSD (reprod.) N/A Upper and Lower PMSD bound N/A___ low__ in-bounds___ high___

Permit Limits & Test Results

	Limits		Results
LC50	>100%	LC50	>100%
		Upper Value	±∞
		Lower Value	100%
		Data Analysis Method Used	Graphical
A-NOEC	N/A	A-NOEC	100%
C-NOEC	>91%	C-NOEC	100%
		LOEC	>100%
IC25		IC25	>100%
IC50	N/A	IC50	>100%

PMSD Comparison Discussion (Test Variability/Sensitivity)

Growth

_ 1. PMSD exceeds upper bounds. Test results are highly variable and may not be sensitive enough to determine the presence of toxicity at the permit limit concentration (PLC).

_ 1a. Test results indicate the discharge is not toxic at the PLC. Test is not sufficiently sensitive and must be repeated within 30 days of the initial test completion date using fresh samples.

_ 1b. Test results indicate the discharge is toxic at the PLC. Test results are considered acceptable and the test does not have to be repeated.

X 2. The PMSD falls within the upper (30%) and lower (12%) bounds. Results are reportable.

_ 3. PMSD falls below the lower bound test variability criterion. The test is very sensitive. The relative percent difference (RPD) between the control and each treatment was calculated and compared to the lower PMSD boundary

_ 3a. The RPD values for each concentration fall below the lower bound. The differences observed in this test are considered statistically insignificant.

_ 3b. The RPDs for the following concentrations are above the lower bound_____. The results at these concentrations are considered statistically significantly lower than controls.

Concentration-Response Evaluation

Survival: No significant effects at any test concentration with a flat concentration-response curve. Test concentrations performed very similarly to dilution control.

Growth: The concentration-response relationship observed in this data set corresponds to the following item number in Chapter Four of "Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136)", EPA 821-B-00-004, July 2000: #10 Inverse concentration-response relationship.

The concentration-response relationship was reviewed according to the above guidance document and the following determination was made:

Survival	Growth	
X	X	1. Results are reliable and reportable.
_	_	2. Results are anomalous. An explanation is provided in the body of the report.
_	_	3. Results are inconclusive. A retest with fresh samples is required. An explanation is provided in the body of the report.

Whole Effluent Toxicity Testing Report Conclusions and Notes

Client Name/Project: Patriot Beverages Test Date: 4/2/18

Sample ID: Outfall 001

Your results were as follows:

☒ Passed all whole effluent toxicity permit limits

☐ Failed the following permit limit(s): *P. promelas*: ☐ LC50 ☐ C-NOEC
Please proceed according to the instructions in your permit.

☐ Original Test Invalid – **Valid retest performed. Both test and retest results are attached.**

☐ A retest using fresh samples must be performed within 30 days of the initial test completion date (____) due to the test condition described below. See next page for further explanation.
☐ Test Invalid due to: ☐ Diluent toxicity ☐ Synthetic control toxicity
☐ Test not sufficiently sensitive. PMSD exceeds upper bound.
☐ Results are inconclusive due to an unusual concentration-response relationship.

☐ Available information is insufficient to determine whether this test passed or failed. Please compare results to your permit limits. Please submit a current copy of your permit to the NEB Lab so that we can determine the status of future tests results and help ensure your compliance with permit requirements.

☐ Additional testing for metals was required on the second and third effluent samples due to the following:
☐ Renewal sample(s) were of sufficient potency to cause lethality to 50% or more of the test organism:
Sample #: ☐ 2 ☐ 3 Conc.: ☐ 6.25% ☐ 12.5% ☐ 25% ☐ 50% ☐ 100% ☐ 91%
☐ The test failed its permit limit for: ☐ LC50 ☐ C-NOEC

Diluent Toxicity:

☐ Testing ☐ will be or ☐ has been performed according to the Case 1 Protocols outlined in the attached copy of EPA-New England's species-specific, self-implementing policy for alternate dilution water.

☐ Retesting ☐ will be or ☐ has been performed according to the Case 1 Protocols outlined in the attached copy of EPA-New England's species-specific, self-implementing policy for alternate dilution water.

☐ This is your _____ case of dilution water toxicity. Please proceed according to the Case 2 Protocols outlined in the attached copy of EPA-New England's species-specific, self-implementing policy for alternate dilution water. The alternate dilution water you select for future tests for this species should be described as follows: "synthetic laboratory water made up according to EPA's toxicity test protocols, by adding specified amounts of salts into deionized water in order to match the hardness of our receiving water." Writing this letter should help you to avoid retests in the future.

Sampling Requirements:

A minimum of 3 samples were collected. ☒ Yes. ☐ No. See explanation on next page.

Samples were first used within 36 hours of collection. ☒ Yes. ☐ No. See explanation on next page.

Dechlorination Procedures: Chlorine was measured using 4500 CL-G DPD Colorimetric Method.

☒ Dechlorination was not required.

☐ Sample was dechlorinated to _____ mg/L by adding sodium thiosulfate to the sample prior to test initiation. A dechlorinated control of diluent water spiked with sodium thiosulfate equal in proportion to the amount added to the effluent sample was included in the test series.

☐ Chlorine elevated due to interference. Chlorine was _____ mg/L after interference check.

☐ Total Residual Chlorine was re-measured following aeration, and was found to be ___ mg/L.

WHOLE EFFLUENT TOXICITY TEST REPORT CERTIFICATION (Permittee)

I certify under penalty of law that this document and all ATTACHMENTS were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on _____ _____
[Date] [Authorized Signature]

_____
[Print or Type Name and Title]

_____
[Print or Type the Permittee's Name]

_____
[Print or Type the NPDES Permit No.]

Since the WET test and report check is complicated, the New England Bioassay Aquatic Toxicity Laboratory has certified the validity of the WET test data in the section below. Please note that this does not relieve the permittee from its responsibility to sign and certify the report under 40 C.F.R. S 122.41(k).

WHOLE EFFLUENT TOXICITY TEST REPORT CERTIFICATION (Bioassay Laboratory)

I certify under penalty of law that this document and all ATTACHMENTS were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on 5/3/18 _____
[Date] [Authorized Signature]

Kim Wills, Laboratory Manager
[Print or Type Name and Title]

New England Bioassay
[Print or Type Name of Bioassay Laboratory]

24. Telephone Contacts
If you have questions, please contact Joy Hilton, Water Technical Unit, at (617) 918-1877 or David McDonald, Ecosystem Assessment Unit, at (617) 918-8609.

NEW ENGLAND BIOASSAY TOXICITY DATA FORM
CHRONIC COVER SHEET

CLIENT: Patriot Beverage
ADDRESS: 20 Harvard Road
Littleton, MA 01460
SAMPLE TYPE: Effluent DSN-001
DILUTION WATER: Laboratory Synthetic Soft Water

P.promelas TEST ID # 18-454
COC # C38-1786/87
PROJECT # 05.0044697.00

VERTEBRATES

TEST SET UP (TECH INIT)	CB
TEST SPECIES	*Pimephales promelas*
NEB LOT#	Pp18 (4-2)
AGE	< 24 hours
TEST SOLUTION VOLUME (mls)	400
NO. ORGANISMS PER TEST CHAMBER	10
NO. ORGANISMS PER CONCENTRATION	40

Laboratory Control Water (SRCF)

Batch Number	Hardness mg/L $CaCO_3$	Alkalinity mg/L $CaCO_3$
C38-S008	48	35

	DATE	TIME
TEST START:	4/2/18	1249
TEST END:	4/9/18	1145

Results of *Pimephales promelas* Chronic Test

		95% Confidence Limits
48 Hour LC50	>100%	100%±∞
7 Day LC50	>100%	100%±∞
Survival NOEC	100%	
Survival LOEC	>100%	
Growth NOEC	100%	
Growth LOEC	>100%	
Growth IC_{25}	>100%	

NOEC: NO OBSERVABLE EFFECT CONCENTRATI LOEC: LOWEST OBSERVABLE EFFECT CONCENTRATION

Comments:

REVIEWD BY: DATE: 5/3/18

NEB'S SURVIVAL DATA SHEET FOR FATHEAD MINNOW LARVAL SURVIVAL AND GROWTH TEST

FACILITY NAME & ADDRESS:	Patriot Beverage, Inc., 20 Harvard Road, Littleton, MA 01460						
NEB PROJECT NUMBER:	05.0044697.00	TEST NUMBER:	18-454		COC #	C38-1786/87	
TEST ORGANISM:	*Pimephales promelas*	AGE:	<24 hours		Lot #	Pp18 (4-2)	
START DATE:	4/2/18	TIME:	1249	END DATE:	4/9/18	TIME:	1145

Effluent Concentration	Replicate Number	Number of Survivors								
		Day								
		0	1	2	3	4	5	6	7	Remarks
	ANALYST	CB	KO	DD	KO	CB	CB	CB	TBP	
NEB Lab Synthetic Diluent	A	10	10	10	10	10	10	10	10	
	B	10	10	10	10	10	10	10	10	
	C	10	10	10	10	10	10	10	9	
	D	10	10	10	10	10	10	10	10	
Reedy Meadow Brook Control	A	10	10	10	9	7	6	6	6	
	B	10	10	10	3	0	0	0	0	
	C	10	10	10	10	9	8	5	5	
	D	10	10	10	2	0	0	0	0	
6.25%	A	10	10	10	10	10	10	10	10	
	B	10	10	10	10	10	10	10	10	
	C	10	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	10	
12.5%	A	10	10	10	10	10	9	9	9	
	B	10	10	10	10	10	10	10	10	
	C	10	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	10	
25%	A	10	10	10	10	10	10	10	10	
	B	10	10	10	9	9	9	8	8	
	C	10	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	10	
50%	A	10	10	10	10	10	10	10	10	
	B	10	10	10	10	10	10	10	10	
	C	10	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	10	
91%	A	10	10	10	10	10	10	10	10	
	B	10	10	10	10	10	10	10	10	
	C	10	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	10	

D.O. concentration fell below 4.0 mg/L _____

All test solutions were aerated at <100 bubbles/minute as of _____

NEB'S SURVIVAL DATA SHEET FOR FATHEAD MINNOW LARVAL SURVIVAL AND GROWTH TEST

FACILITY NAME & ADDRESS:	Patriot Beverage, Inc., 20 Harvard Road, Littleton, MA 01460				
NEB PROJECT NUMBER:	05.0044697.00	TEST NUMBER:	18-454	COC #	C38-1786/87
TEST ORGANISM:	*Pimephales promelas*	AGE:	<24 hours	Lot #	Pp18 (4-2)
START DATE:	4/2/18 TIME: 1249	END DATE:	4/9/18	TIME:	1145

Effluent Concentration	Replicate Number	Number of Survivors								
		Day								
		0	1	2	3	4	5	6	7	Remarks
	ANALYST	CB	KO	DD	KO	CB	CB	CB	TBP	
100%	A	10	10	10	10	10	10	10	10	
	B	10	10	10	10	10	10	10	10	
	C	10	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	10	

NEW ENGLAND BIOASSAY OBSERVATION DATA FORM

Client: Patriot Beverage Test Species: Pimephales promelas Test ID: 18-454

Sample: Effluent Test Date: 4/2/18 Project # 05.0044697.00

Concentration or Dilution	Number of Live Organisms	All organisms appear healthy and normal unless noted
		Day 3 Observations Date: 4/5/18 Technician: KO
Diluent	40	
Brook	24	1 dead in rep A, 7 dead in rep B, 8 dead in rep D no fungus.
6.25%	40	
12.5%	40	
25%	39	1 missing in rep B, technician error
50%	40	
91%	40	
100%	40	
		Day 4 Observations Date: 4/6/18 Technician: CB
Diluent	40	
Brook	16	o fungus on both; 3 dead in rep B, 1 w/ fungus; 1 dead in rep C w/ fungus; 2 dead in rep D,
6.25%	40	
12.5%	40	
25%	39	
50%	40	
91%	40	
100%	40	

NEW ENGLAND BIOASSAY OBSERVATION DATA FORM

Client: Patriot Beverage Test Species: Pimephales promelas Test ID: 18-454

Sample: Effluent Test Date: 4/2/18 Project # 05.0044697.00

Concentration or Dilution	Number of Live Organisms	All organisms appear healthy and normal unless noted
		Day 5 Observations Date: 4/7/18 Technician: CB
Diluent	40	
Brook	14	1 dead in rep A, 1 dead in rep C, both with fungus
6.25%	40	
12.5%	39	1 dead in rep A, no fungus
25%	39	
50%	40	
91%	40	
100%	40	
		Day 6 Observations Date: 4/8/18 Technician: CB
Diluent	40	
Brook	11	3 dead in rep C, all with fungus
6.25%	40	
12.5%	39	
25%	38	1 dead in rep B, no fungus
50%	40	
91%	40	
100%	40	

NEW ENGLAND BIOASSAY OBSERVATION DATA FORM

Client: Patriot Beverage Test Species: Pimephales promelas Test ID: 18-454

Sample: Effluent Test Date: 4/2/18 Project # 05.0044697.00

Concentration or Dilution	Number of Live Organisms	All organisms appear healthy and normal unless noted
		Day Observations Date: Technician:
Diluent		
Brook		
6.25%		
12.5%		
25%		
50%		
91%		
100%		
		Day 7 Observations Date: 4/9/18 Technician: TBP
Diluent	39	1 dead in Rep C without fungus
Brook	11	
6.25%	40	
12.5%	39	
25%	38	
50%	40	
91%	40	
100%	40	

NEW ENGLAND BIOASSAY WEIGHT DATA FOR FATHEAD MINNOW LARVAL SURVIVAL AND GROWTH TEST

FACILITY NAME & ADDRESS:	Patriot Beverage, Inc., 20 Harvard Road, Littleton, MA 01460		
NEB PROJECT #	05.0044697.00	NEB TEST NUMBER:	18-454
TEST START DATE	4/2/18	WEIGHING DATE:	4/20/18
TEST END DATE	4/9/18		
DRYING TEMPERATURE (°C)	100 ± 4	DRYING TIME:	minimum 6 hours
ANALYST-INITIAL WEIGHTS	CW	ANALYST-FINAL WEIGHTS	DD

Effluent Concentration	Replicate Number	A Weight of boat (mg)	B Dry Weight: Foil and Larvae (mg)
NEB Lab Synthetic Diluent	A	939.89	945.05
	B	942.13	947.35
	C	942.50	947.05
	D	940.22	944.94
Reedy Meadow Brook Control	A	941.04	945.15
	B	943.17	-
	C	942.85	946.26
	D	941.03	-
6.25%	A	936.88	942.55
	B	938.10	943.59
	C	941.67	947.07
	D	939.80	945.28
12.5%	A	936.18	941.27
	B	937.87	943.55
	C	936.50	943.47
	D	936.41	942.32
25%	A	940.58	945.72
	B	938.42	943.35
	C	938.23	943.42
	D	933.87	939.05
50%	A	945.12	950.65
	B	939.87	945.88
	C	940.29	946.15
	D	940.11	945.78
91%	A	938.58	944.15
	B	943.52	949.62
	C	941.76	947.39
	D	942.37	948.16
100%	A	940.55	946.67
	B	938.85	945.16
	C	935.64	941.90
	D	940.39	946.49

Fathead Minnow 7-d Larval Survival and Growth Test — **New England Bioassay**

Analysis ID:	10-8375-8422	**Endpoint:**	2d Survival Rate	**CETIS Version:**	CETISv1.9.4
Analyzed:	16 Apr-18 14:02	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1
Batch ID:	08-9337-6348	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	02 Apr-18 12:49	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	09 Apr-18 11:45	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Test Length:	6d 23h	**Taxon:**	Actinopterygii	**Source:**	In-House Culture **Age:** <24
Sample ID:	09-3965-9836	**Code:**	3802123C	**Project:**	
Sample Date:	02 Apr-18 07:00	**Material:**	Industrial Effluent	**Source:**	Patriot Beverages (MA0004936)
Receipt Date:	03 Apr-18 11:28	**CAS (PC):**		**Station:**	
Sample Age:	6h	**Client:**	Patriot Beverages		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X)	Linear	146338	200	Yes	Two-Point Interpolation

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
LC50	>100	n/a	n/a	<1	n/a	n/a

2d Survival Rate Summary

			Calculated Variate(A/B)							Isotonic Variate	
Conc-%	Code	Count	Mean	Min	Max	Std Dev	CV%	%Effect	A/B	Mean	%Effect
0	D	4	1.0000	1.0000	1.0000	0.0000	0.00%	0.0%	40/40	1	0.0%
6.25		4	1.0000	1.0000	1.0000	0.0000	0.00%	0.0%	40/40	1	0.0%
12.5		4	1.0000	1.0000	1.0000	0.0000	0.00%	0.0%	40/40	1	0.0%
25		4	1.0000	1.0000	1.0000	0.0000	0.00%	0.0%	40/40	1	0.0%
50		4	1.0000	1.0000	1.0000	0.0000	0.00%	0.0%	40/40	1	0.0%
91		4	1.0000	1.0000	1.0000	0.0000	0.00%	0.0%	40/40	1	0.0%
100		4	1.0000	1.0000	1.0000	0.0000	0.00%	0.0%	40/40	1	0.0%

2d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000
91		1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000

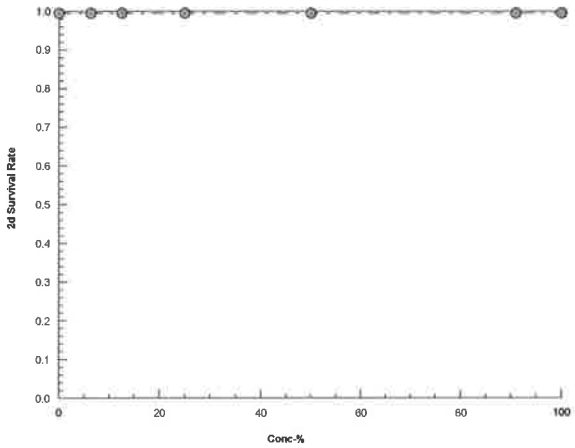
2d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	10/10	10/10	10/10	10/10
6.25		10/10	10/10	10/10	10/10
12.5		10/10	10/10	10/10	10/10
25		10/10	10/10	10/10	10/10
50		10/10	10/10	10/10	10/10
91		10/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

Fathead Minnow 7-d Larval Survival and Growth Test **New England Bioassay**

Analysis ID:	10-8375-8422	**Endpoint:**	2d Survival Rate	**CETIS Version:**	CETISv1.9.4
Analyzed:	16 Apr-18 14:02	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1

Graphics



Fathead Minnow 7-d Larval Survival and Growth Test — **New England Bioassay**

Analysis ID:	15-3118-2475	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.9.4
Analyzed:	16 Apr-18 14:03	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1
Batch ID:	08-9337-6348	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	02 Apr-18 12:49	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	09 Apr-18 11:45	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Test Length:	6d 23h	**Taxon:**	Actinopterygii	**Source:**	In-House Culture **Age:** <24
Sample ID:	09-3965-9836	**Code:**	3802123C	**Project:**	
Sample Date:	02 Apr-18 07:00	**Material:**	Industrial Effluent	**Source:**	Patriot Beverages (MA0004936)
Receipt Date:	03 Apr-18 11:28	**CAS (PC):**		**Station:**	
Sample Age:	6h	**Client:**	Patriot Beverages		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X)	Linear	1449731	200	Yes	Two-Point Interpolation

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control Resp	0.975	0.8	>>	Yes	Passes Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
LC50	>100	n/a	n/a	<1	n/a	n/a

7d Survival Rate Summary

			Calculated Variate(A/B)							Isotonic Variate	
Conc-%	**Code**	**Count**	**Mean**	**Min**	**Max**	**Std Dev**	**CV%**	**%Effect**	**A/B**	**Mean**	**%Effect**
0	D	4	0.9750	0.9000	1.0000	0.0500	5.13%	0.0%	39/40	0.9875	0.0%
6.25		4	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%	40/40	0.9875	0.0%
12.5		4	0.9750	0.9000	1.0000	0.0500	5.13%	0.0%	39/40	0.985	0.25%
25		4	0.9500	0.8000	1.0000	0.1000	10.53%	2.56%	38/40	0.985	0.25%
50		4	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%	40/40	0.985	0.25%
91		4	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%	40/40	0.985	0.25%
100		4	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%	40/40	0.985	0.25%

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.0000	1.0000	0.9000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000
12.5		0.9000	1.0000	1.0000	1.0000
25		1.0000	0.8000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000
91		1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000

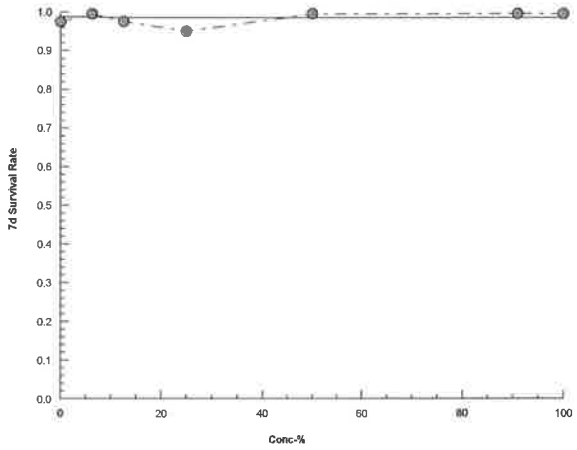
7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	10/10	10/10	10/10	10/10
6.25		10/10	10/10	10/10	10/10
12.5		10/10	10/10	10/10	10/10
25		10/10	10/10	10/10	10/10
50		10/10	10/10	10/10	10/10
91		10/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

Fathead Minnow 7-d Larval Survival and Growth Test — **New England Bioassay**

Analysis ID:	15-3118-2475	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.9.4
Analyzed:	16 Apr-18 14:03	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1

Graphics



Fathead Minnow 7-d Larval Survival and Growth Test — **New England Bioassay**

Analysis ID:	17-8046-4277	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.9.4
Analyzed:	16 Apr-18 14:03	**Analysis:**	Nonparametric-Control vs Treatments	**Status Level:**	1
Batch ID:	08-9337-6348	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	02 Apr-18 12:49	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	09 Apr-18 11:45	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Test Length:	6d 23h	**Taxon:**	Actinopterygii	**Source:**	In-House Culture **Age:** <24
Sample ID:	09-3965-9836	**Code:**	3802123C	**Project:**	
Sample Date:	02 Apr-18 07:00	**Material:**	Industrial Effluent	**Source:**	Patriot Beverages (MA0004936)
Receipt Date:	03 Apr-18 11:28	**CAS (PC):**		**Station:**	
Sample Age:	6h	**Client:**	Patriot Beverages		

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	C > T	100	>100	n/a	1	7.86%

Steel Many-One Rank Sum Test

Control	vs	Conc-%	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Dilution Water		6.25	20	10	1	6	Asymp	0.9616	Non-Significant Effect
		12.5	18	10	2	6	Asymp	0.8571	Non-Significant Effect
		25	17.5	10	1	6	Asymp	0.8141	Non-Significant Effect
		50	20	10	1	6	Asymp	0.9616	Non-Significant Effect
		91	20	10	1	6	Asymp	0.9616	Non-Significant Effect
		100	20	10	1	6	Asymp	0.9616	Non-Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control Resp	0.975	0.8	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0223043	0.0037174	6	0.7126	0.6434	Non-Significant Effect
Error	0.109547	0.0052165	21			
Total	0.131851		27			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Levene Equality of Variance Test	6.414	3.812	5.9E-04	Unequal Variances
Variances	Mod Levene Equality of Variance Test	0.7126	3.812	0.6434	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.7041	0.8975	3.3E-06	Non-Normal Distribution

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	0.9750	0.8954	1.0000	1.0000	0.9000	1.0000	0.0250	5.13%	0.00%
6.25		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%
12.5		4	0.9750	0.8954	1.0000	1.0000	0.9000	1.0000	0.0250	5.13%	0.00%
25		4	0.9500	0.7909	1.0000	1.0000	0.8000	1.0000	0.0500	10.53%	2.56%
50		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%
91		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%
100		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	0.00%
6.25		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	-2.97%
12.5		4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	0.00%
25		4	1.336	1.093	1.578	1.412	1.107	1.412	0.07622	11.41%	2.59%
50		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	-2.97%
91		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	-2.97%
100		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	-2.97%

Fathead Minnow 7-d Larval Survival and Growth Test — **New England Bioassay**

Analysis ID:	17-8046-4277	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.9.4
Analyzed:	16 Apr-18 14:03	**Analysis:**	Nonparametric-Control vs Treatments	**Status Level:**	1

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.0000	1.0000	0.9000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000
12.5		0.9000	1.0000	1.0000	1.0000
25		1.0000	0.8000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000
91		1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000

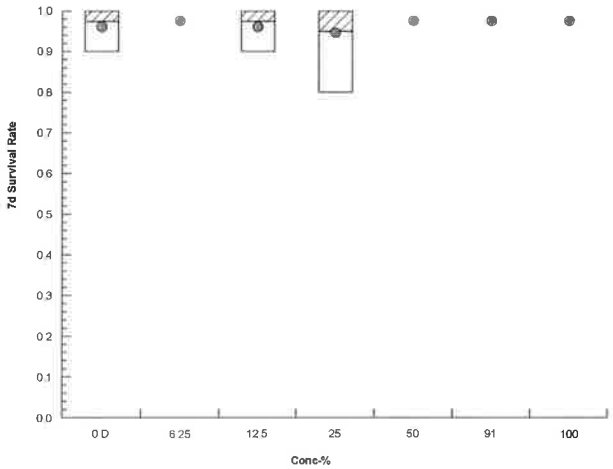
Angular (Corrected) Transformed Detail

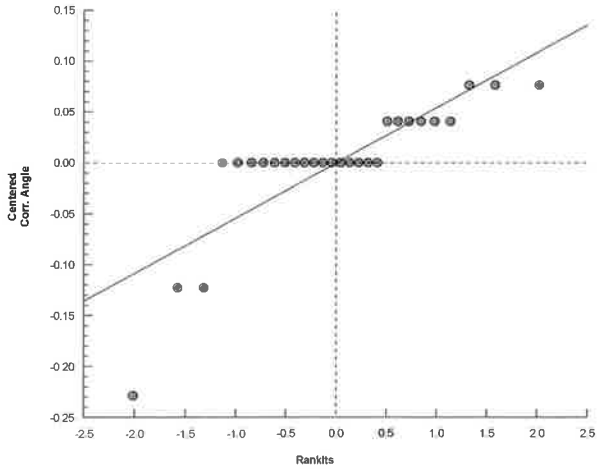
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.412	1.412	1.249	1.412
6.25		1.412	1.412	1.412	1.412
12.5		1.249	1.412	1.412	1.412
25		1.412	1.107	1.412	1.412
50		1.412	1.412	1.412	1.412
91		1.412	1.412	1.412	1.412
100		1.412	1.412	1.412	1.412

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	10/10	10/10	9/10	10/10
6.25		10/10	10/10	10/10	10/10
12.5		9/10	10/10	10/10	10/10
25		10/10	8/10	10/10	10/10
50		10/10	10/10	10/10	10/10
91		10/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

Graphics





Fathead Minnow 7-d Larval Survival and Growth Test — **New England Bioassay**

Analysis ID:	01-0755-9235	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.9.4
Analyzed:	24 Apr-18 10:18	**Analysis:**	Nonparametric-Control vs Treatments	**Status Level:**	1
Batch ID:	08-9337-6348	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	02 Apr-18 12:49	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	09 Apr-18 11:45	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Test Length:	6d 23h	**Taxon:**	Actinopterygii	**Source:**	In-House Culture **Age:** <24
Sample ID:	09-3965-9836	**Code:**	3802123C	**Project:**	
Sample Date:	02 Apr-18 07:00	**Material:**	Industrial Effluent	**Source:**	Patriot Beverages (MA0004936)
Receipt Date:	03 Apr-18 11:28	**CAS (PC):**		**Station:**	
Sample Age:	6h	**Client:**	Patriot Beverages		

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	100	>100	n/a	1	12.38%

Steel Many-One Rank Sum Test

Control	vs	Conc-%	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Dilution Water		6.25	26	10	0	6	Asymp	1.0000	Non-Significant Effect
		12.5	24	10	0	6	Asymp	0.9993	Non-Significant Effect
		25	20	10	0	6	Asymp	0.9616	Non-Significant Effect
		50	26	10	0	6	Asymp	1.0000	Non-Significant Effect
		91	26	10	0	6	Asymp	1.0000	Non-Significant Effect
		100	26	10	0	6	Asymp	1.0000	Non-Significant Effect

Test Acceptability Criteria — **TAC Limits**

Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control Resp	0.4912	0.25	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0493326	0.0082221	6	6.665	4.7E-04	Significant Effect
Error	0.025908	0.0012337	21			
Total	0.0752406		27			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance Test	19.01	16.81	0.0041	Unequal Variances
Distribution	Shapiro-Wilk W Normality Test	0.877	0.8975	0.0034	Non-Normal Distribution

Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	0.4912	0.4389	0.5436	0.494	0.455	0.522	0.01644	6.69%	0.00%
6.25		4	0.551	0.5329	0.5691	0.5485	0.54	0.567	0.0057	2.07%	-12.16%
12.5		4	0.5913	0.4663	0.7162	0.5795	0.509	0.697	0.03925	13.28%	-20.36%
25		4	0.511	0.4916	0.5304	0.516	0.493	0.519	0.006096	2.39%	-4.02%
50		4	0.5768	0.5432	0.6103	0.5765	0.553	0.601	0.01054	3.65%	-17.41%
91		4	0.5772	0.5395	0.615	0.571	0.557	0.61	0.01186	4.11%	-17.51%
100		4	0.6197	0.6033	0.6362	0.619	0.61	0.631	0.005171	1.67%	-26.16%

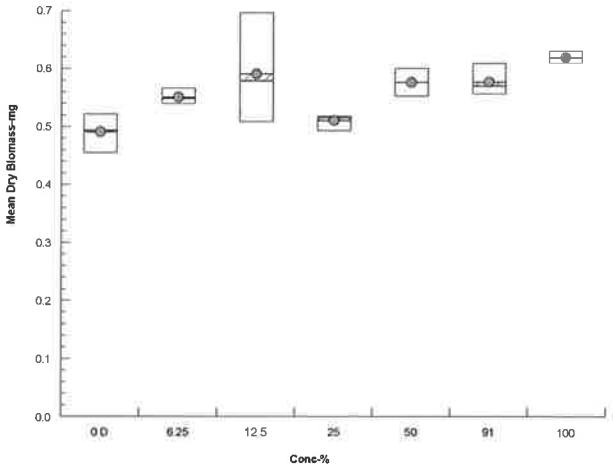
Mean Dry Biomass-mg Detail

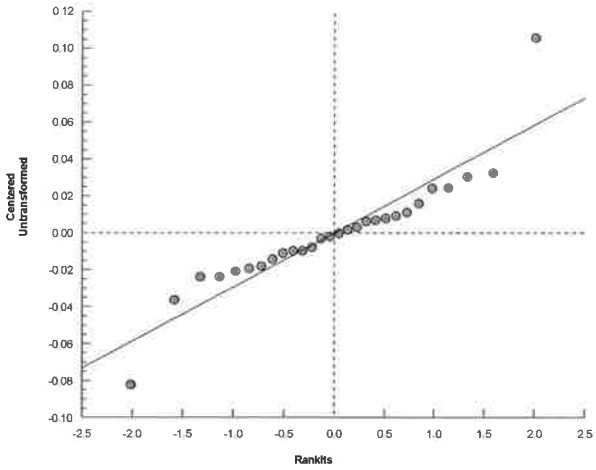
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	0.516	0.522	0.455	0.472
6.25		0.567	0.549	0.54	0.548
12.5		0.509	0.568	0.697	0.591
25		0.514	0.493	0.519	0.518
50		0.553	0.601	0.586	0.567
91		0.557	0.61	0.563	0.579
100		0.612	0.631	0.626	0.61

Fathead Minnow 7-d Larval Survival and Growth Test **New England Bioassay**

Analysis ID:	01-0755-9235	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.9.4
Analyzed:	24 Apr-18 10:18	**Analysis:**	Nonparametric-Control vs Treatments	**Status Level:**	1

Graphics





Fathead Minnow 7-d Larval Survival and Growth Test — **New England Bioassay**

Analysis ID:	18-7982-6955	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.9.4
Analyzed:	24 Apr-18 10:18	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1
Batch ID:	08-9337-6348	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	02 Apr-18 12:49	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	09 Apr-18 11:45	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Test Length:	6d 23h	**Taxon:**	Actinopterygii	**Source:**	In-House Culture **Age:** <24
Sample ID:	09-3965-9836	**Code:**	3802123C	**Project:**	
Sample Date:	02 Apr-18 07:00	**Material:**	Industrial Effluent	**Source:**	Patriot Beverages (MA0004936)
Receipt Date:	03 Apr-18 11:28	**CAS (PC):**		**Station:**	
Sample Age:	6h	**Client:**	Patriot Beverages		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	183965	200	Yes	Two-Point Interpolation

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control Resp	0.4912	0.25	>>	Yes	Passes Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC25	>100	n/a	n/a	<1	n/a	n/a
IC50	>100	n/a	n/a	<1	n/a	n/a

Mean Dry Biomass-mg Summary

			Calculated Variate						Isotonic Variate	
Conc-%	**Code**	**Count**	**Mean**	**Min**	**Max**	**Std Dev**	**CV%**	**%Effect**	**Mean**	**%Effect**
0	D	4	0.4912	0.455	0.522	0.03288	6.69%	0.0%	0.5598	0.0%
6.25		4	0.551	0.54	0.567	0.0114	2.07%	-12.16%	0.5598	0.0%
12.5		4	0.5913	0.509	0.697	0.0785	13.28%	-20.36%	0.5598	0.0%
25		4	0.511	0.493	0.519	0.01219	2.39%	-4.02%	0.5598	0.0%
50		4	0.5768	0.553	0.601	0.02108	3.65%	-17.41%	0.5598	0.0%
91		4	0.5772	0.557	0.61	0.02372	4.11%	-17.51%	0.5598	0.0%
100		4	0.6197	0.61	0.631	0.01034	1.67%	-26.16%	0.5598	0.0%

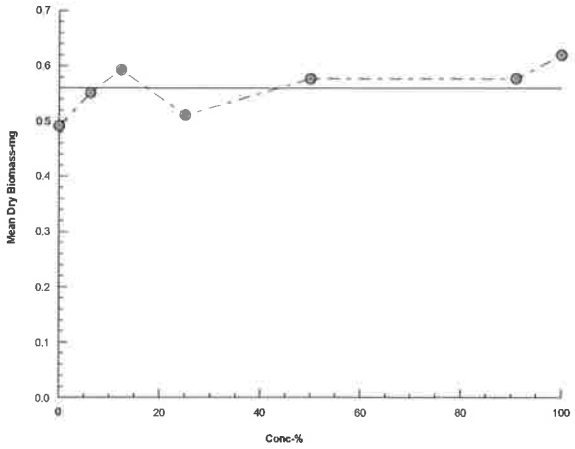
Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	0.516	0.522	0.455	0.472
6.25		0.567	0.549	0.54	0.548
12.5		0.509	0.568	0.697	0.591
25		0.514	0.493	0.519	0.518
50		0.553	0.601	0.586	0.567
91		0.557	0.61	0.563	0.579
100		0.612	0.631	0.626	0.61

Fathead Minnow 7-d Larval Survival and Growth Test | **New England Bioassay**

Analysis ID:	18-7982-6955	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.9.4
Analyzed:	24 Apr-18 10:18	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1

Graphics



Concentration	Rep	Final Weight (mg)	Initial Weight (mg)	Total Weight (mg)	Average per fish (mg)	Mean fish weight (mg)	Standard Deviation
NEB Lab Synthetic Diluent	1	945.05	939.89	5.16	0.516	0.4912	0.032877297
	2	947.35	942.13	5.22	0.522		
	3	947.05	942.50	4.55	0.455		
	4	944.94	940.22	4.72	0.472		
Reedy Meadow Brook Control	1	0.00	0.00	0.00	0.000	0.0852	0.1705
	2	0.00	0.00	0.00	0.000		
	3	946.26	942.85	3.41	0.341		
	4	0.00	0.00	0.00	0.000		
6.25%	1	942.55	936.88	5.67	0.567	0.5510	0.011401754
	2	943.59	938.10	5.49	0.549		
	3	947.07	941.67	5.40	0.540		
	4	945.28	939.80	5.48	0.548		
12.5%	1	941.27	936.18	5.09	0.509	0.5913	0.078504246
	2	943.55	937.87	5.68	0.568		
	3	943.47	936.50	6.97	0.697		
	4	942.32	936.41	5.91	0.591		
25%	1	945.72	940.58	5.14	0.514	0.5110	0.012192894
	2	943.35	938.42	4.93	0.493		
	3	943.42	938.23	5.19	0.519		
	4	939.05	933.87	5.18	0.518		
50%	1	950.65	945.12	5.53	0.553	0.5767	0.021077239
	2	945.88	939.87	6.01	0.601		
	3	946.15	940.29	5.86	0.586		
	4	945.78	940.11	5.67	0.567		
91%	1	944.15	938.58	5.57	0.557	0.5772	0.023725865
	2	949.62	943.52	6.10	0.610		
	3	947.39	941.76	5.63	0.563		
	4	948.16	942.37	5.79	0.579		
100%	1	946.67	940.55	6.12	0.612	0.6197	0.010340052
	2	945.16	938.85	6.31	0.631		
	3	941.90	935.64	6.26	0.626		
	4	946.49	940.39	6.10	0.610		

NEB'S DATA SHEET FOR ROUTINE CHEMICAL AND PHYSICAL DETERMINATIONS

FACILITY NAME & ADDRESS:	Patriot Beverage, Inc., 20 Harvard Road, Littleton, MA 01460							
NEB PROJECT NUMBER:	05.0044697.00			TEST ORGANISM			*Pimephales promelas*	
DILUTION WATER SOURCE:	Laboratory Synthetic Soft Water			START DATE:			4/2/18	TIME: 1249
ANALYST	CB	PD	CB	TBP	CB	PD	CB	
NEB Lab Synthetic Diluent	1	2	3	4	5	6	7	Remarks
Temp °C Initial	26.0	25.9	25.9	24.9	25.5	25.4	25.2	
D.O. mg/L Initial	8.2	8.2	8.0	8.3	8.2	8.1	8.2	
pH s.u. Initial	7.5	7.6	7.4	7.9	7.5	7.7	7.5	
Conductivity µS Initial	177	176	177	178	176	177	176	
Temp °C Final	25.3	25.4	24.7	24.7	25.8	25.0	24.8	
D.O. mg/L Final	7.5	6.7	7.5	7.6	6.7	7.4	7.7	
pH s.u. Final	7.2	7.3	7.3	7.3	7.1	7.0	7.1	
Conductivity µS Final	193	208	214	208	210	206	199	
Reedy Meadow Brook Control	1	2	3	4	5	6	7	Remarks
Temp °C Initial	24.0	26.0	24.4	25.7	25.3	25.2	25.5	
D.O. mg/L Initial	9.6	8.6	9.9	9.2	10.0	9.2	8.7	
pH s.u. Initial	7.2	7.2	6.8	7.2	7.2	7.1	7.0	
Conductivity µS Initial	271	269	260	263	243	243	242	
Temp °C Final	25.0	25.3	24.8	25.6	25.2	25.0	25.1	
D.O. mg/L Final	7.6	6.9	6.9	7.5	6.9	7.0	7.5	
pH s.u. Final	7.1	7.2	7.4	7.4	7.1	6.9	6.9	
Conductivity µS Final	287	297	296	290	278	274	263	
6.25%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.8	26.0	25.8	24.9	25.5	25.2	25.5	
D.O. mg/L Initial	8.3	8.2	8.2	8.4	8.2	8.2	8.1	
pH s.u. Initial	8.1	7.9	8.0	8.0	8.1	8.2	8.2	
Conductivity µS Initial	322	317	332	315	327	324	327	
Temp °C Final	25.1	25.3	24.9	25.4	25.7	25.5	25.3	
D.O. mg/L Final	7.4	6.6	7.3	7.4	6.8	7.0	7.6	
pH s.u. Final	7.8	7.8	7.9	7.8	7.7	7.8	7.2	
Conductivity µS Final	334	351	364	348	358	358	347	
12.5%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.7	26.0	25.8	24.8	25.4	25.0	25.3	
D.O. mg/L Initial	8.4	8.2	8.2	8.4	8.3	8.2	8.2	
pH s.u. Initial	8.3	8.1	8.2	8.2	8.3	8.3	8.3	
Conductivity µS Initial	473	462	487	478	477	484	522	
Temp °C Final	25.1	25.3	25.1	24.6	25.6	25.0	25.2	
D.O. mg/L Final	7.5	6.7	7.2	7.4	6.6	7.1	7.1	
pH s.u. Final	8.2	8.1	8.1	8.1	8.1	8.2	7.7	
Conductivity µS Final	487	500	525	516	514	517	546	

NEB'S DATA SHEET FOR ROUTINE CHEMICAL AND PHYSICAL DETERMINATIONS

FACILITY NAME & ADDRESS:	Patriot Beverage, Inc., 20 Harvard Road, Littleton, MA 01460							
NEB PROJECT NUMBER:	05.0044697.00			TEST ORGANISM			*Pimephales promelas*	
DILUTION WATER SOURCE:	Laboratory Synthetic Soft Water			START DATE:			4/2/18 TIME:	1249
25%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.5	26.0	25.8	25.0	25.6	25.2	25.4	
D.O. mg/L Initial	8.6	8.3	8.5	8.4	8.4	8.3	8.2	
pH s.u. Initial	8.4	8.2	8.4	8.3	8.4	8.4	8.4	
Conductivity µS Initial	756	741	769	779	784	773	791	
Temp °C Final	25.8	25.7	24.9	25.5	25.9	25.7	25.5	
D.O. mg/L Final	7.5	6.4	7.1	7.4	6.5	6.6	7.1	
pH s.u. Final	8.4	8.4	8.3	8.4	8.4	8.4	8.1	
Conductivity µS Final	755	773	802	802	813	804	809	
50%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	24.9	26.0	25.7	25.2	25.6	25.0	25.2	
D.O. mg/L Initial	9.1	8.3	8.9	8.7	8.8	8.6	8.4	
pH s.u. Initial	8.4	8.3	8.4	8.4	8.4	8.4	8.4	
Conductivity µS Initial	1,311	1,305	1,353	1,373	1,372	1,369	1,340	
Temp °C Final	25.5	25.5	25.0	25.7	25.9	25.7	25.7	
D.O. mg/L Final	7.5	6.5	6.9	7.0	6.3	6.5	6.8	
pH s.u. Final	8.6	8.6	8.4	8.4	8.4	8.4	8.2	
Conductivity µS Final	1,306	1,329	1,369	1,364	1,364	1,355	1,328	
91%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	24.0	26.0	25.5	25.3	25.8	24.6	24.8	
D.O. mg/L Initial	10.0	8.5	9.7	8.8	9.4	9.2	8.6	
pH s.u. Initial	8.4	8.2	8.4	8.3	8.4	8.4	8.4	
Conductivity µS Initial	2,201	2,171	2,246	2,250	2,285	2,277	2,225	
Temp °C Final	25.2	25.4	24.7	24.8	25.7	25.2	25.7	
D.O. mg/L Final	7.7	6.7	7.9	7.1	6.4	6.7	6.6	
pH s.u. Final	8.5	8.5	8.3	8.4	8.3	8.4	8.4	
Conductivity µS Final	2,126	2,163	2,223	2,214	2,201	2,202	2,188	
100%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	24.0	26.0	25.3	25.4	25.7	24.3	24.6	
D.O. mg/L Initial	10.8	8.8	10.5	9.5	10.1	9.6	8.9	
pH s.u. Initial	8.4	8.2	8.4	8.3	8.3	8.4	8.4	
Conductivity µS Initial	2,397	2,357	2,442	2,452	2,480	2,471	2,447	
Temp °C Final	25.3	25.5	24.6	24.9	25.8	25.4	24.9	
D.O. mg/L Final	7.6	6.5	7.2	7.1	6.3	6.5	7.0	
pH s.u. Final	8.5	8.5	8.4	8.5	8.4	8.5	8.4	
Conductivity µS Final	2,283	2,330	2,260	2,406	2,387	2,375	2,377	

NEW ENGLAND BIOASSAY
INITIAL CHEMISTRY DATA

CLIENT: Patriot Beverage
NEB JOB # 05.0044697.00
TEST ID # P.promelas 18-454

DATE RECEIVED	4/2/18		4/4/18		4/6/18	
SAMPLE TYPE:	EFF #1	BROOK #1	EFF #2	BROOK #2	EFF #3	BROOK #3
COC #	C38-1786	C38-1787	C38-1806	C38-1807	C38-1829	C38-1830
pH (SU)	8.1	7.2	8.2	7.3	8.1	7.1
Temperature (°C)	3.3	2.4	4.2	3.5	2.9	1.8
Dissolved Oxygen (mg/L)	9.4	9.0	11.3	10.9	10.6	10.7
Conductivity (µmhos)	2,419	275	2,446	261	2,497	245
Salinity (ppt)	1	<1	1	<1	1	< 1
TRC - DPD (mg/L)	0.027	0.015	0.025	0.006	0.031	0.009
TRC - Amperometric (mg/L)	N/A	N/A	N/A	N/A	N/A	N/A
Hardness (mg/L as $CaCO_3$)	152	20	164	36	178	36
Alkalinity (mg/l as $CaCO_3$)	885	20	865	15	940	15
Color	very light yellow	light yellow	very light yellow	light yellow	light yellow	yellow
Clarity	clear	clear w/debris	clear	clear	clear	clear
Tech Initials	TBP	TBP	KO	KO	CW	CW

NOTE: NA = NOT APPLICABLE

Data Reviewed By: Date Reviewed: 5/3/18

Table of Random Permutations of 16 **P.promelas Test ID#** 18-454

7	12	15	15	1	2	7	16	10	2	14	15	7	13	13	10	6	1	8	10
13	3	8	16	7	10	11	10	13	5	11	7	13	16	7	7	5	13	2	14
3	1	4	5	14	13	3	14	9	13	13	2	9	15	6	2	8	4	5	8
11	8	16	14	15	6	2	6	2	16	8	5	12	3	9	13	4	3	10	4
14	9	1	6	3	9	14	13	8	6	5	8	14	7	3	15	13	11	4	7
2	16	10	13	5	5	13	2	11	7	3	12	5	14	12	16	2	2	9	15
4	6	13	7	2	15	1	9	1	4	7	10	6	9	11	9	7	6	16	11
6	14	6	10	4	14	4	15	3	3	4	16	2	6	5	1	12	10	6	9
10	15	2	1	13	12	16	3	4	8	10	1	15	5	14	12	14	12	3	2
12	10	7	12	9	11	9	8	12	14	15	4	11	8	16	8	9	14	14	1
15	7	5	2	10	7	8	12	6	15	6	13	16	12	15	4	11	8	12	6
16	2	11	8	8	8	15	5	16	1	1	9	8	1	8	14	16	5	13	5
9	13	14	3	6	4	10	11	5	12	9	3	10	4	4	3	10	9	1	3
8	11	9	4	11	3	12	7	7	10	12	14	3	10	1	6	15	16	15	12
1	5	12	11	16	16	5	4	14	9	16	11	1	2	10	5	1	15	7	13
5	4	3	9	12	1	6	1	15	11	2	6	4	11	2	11	3	7	11	16
11	8	16	5	5	13	1	13	2	16	14	12	9	8	7	5	13	3	13	3
2	2	8	8	14	16	4	3	8	11	10	14	15	1	2	11	4	5	15	9
6	13	2	13	6	5	9	15	11	10	12	6	16	15	16	9	10	12	16	15
14	12	4	16	16	11	14	10	5	12	3	3	12	14	15	13	6	4	1	16
8	6	3	9	4	10	6	4	16	2	2	9	8	16	4	6	5	15	7	8
9	15	12	10	3	2	12	6	1	15	4	13	7	7	9	12	14	8	8	11
3	10	11	12	13	12	5	11	7	8	9	5	14	11	10	1	3	13	3	5
16	1	13	14	8	14	15	5	3	7	11	15	6	12	5	7	11	1	14	4
1	14	14	2	9	15	16	14	6	14	7	8	3	13	11	8	7	7	12	7
4	4	6	4	12	3	11	8	15	9	8	1	13	6	3	3	15	9	9	12
15	5	1	11	10	6	3	7	10	5	5	11	10	10	12	15	16	14	5	2
5	3	5	6	7	7	13	2	14	3	16	4	5	5	13	4	9	16	2	6
12	7	15	15	15	9	8	12	12	13	15	10	1	4	6	16	2	6	11	1
10	11	10	3	2	4	2	1	4	6	6	7	11	9	14	10	8	11	4	13
7	9	7	7	11	1	7	16	13	1	13	2	4	2	1	2	12	2	10	14
13	16	9	1	1	8	10	9	9	4	1	16	2	3	8	14	1	10	6	10
										rep		conc							
1	6	7	4	8	6	5	2	8	15	4	6	6	1	4	5	7	13	2	10
9	15	11	3	11	15	9	10	1	3	8	2	15	7	9	8	16	1	14	3
10	16	4	5	12	9	16	11	7	1	7	16	11	8	3	3	12	2	3	4
4	14	1	9	5	5	4	13	6	8	15	5	12	5	7	16	5	11	8	1
7	3	13	14	15	2	1	14	16	5	14	9	2	16	1	12	6	14	4	13
16	11	2	1	14	16	6	9	3	4	16	14	3	15	11	11	3	9	12	5
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15	2	3	12	9	12	2	4	13	10	3	13	14	4	2	1	14	8	6	12
14	1	14	6	10	1	3	12	4	2	2	4	13	3	16	9	9	3	7	14
13	12	5	11	3	11	15	8	2	7	11	7	8	14	6	4	4	4	15	11
12	5	10	7	2	14	7	15	14	16	13	1	9	10	12	10	11	10	9	8
8	9	8	10	6	4	11	7	10	11	6	8	4	9	8	15	8	6	11	9
2	7	6	2	1	8	10	6	15	12	1	11	7	11	13	6	1	15	13	15
6	4	15	8	16	10	14	16	9	6	12	3	10	6	14	7	2	12	16	7
5	8	12	15	7	3	12	5	12	9	5	15	1	13	15	13	15	5	1	2
13	4	10	4	16	13	16	13	5	3	6	14	1	16	8	7	2	3	3	12
5	14	4	6	8	2	15	1	13	14	16	4	15	4	3	12	12	1	4	7
2	2	2	15	14	16	9	12	16	6	10	15	14	9	10	1	14	8	8	16
7	12	15	8	12	3	5	14	7	12	5	13	16	1	7	5	11	2	9	3
6	9	7	14	9	14	10	11	15	11	12	1	12	12	14	16	3	11	11	8
14	5	16	7	10	8	11	8	14	13	7	11	6	3	11	4	4	6	6	9
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1	8	1	13	1	15	4	4	11	4	2	16	5	8	1	9	5	12	16	6
9	7	14	2	6	4	14	10	9	8	15	10	7	10	9	10	6	14	10	11
12	1	9	10	15	5	2	15	10	2	14	2	8	2	4	13	8	5	15	5
3	3	12	11	5	9	6	6	3	10	13	12	9	6	2	15	7	15	7	13
10	15	11	5	13	7	12	5	2	7	11	5	10	15	12	3	1	13	13	10
8	13	13	3	3	10	13	2	4	1	8	6	11	14	15	6	9	16	2	2
16	16	5	12	11	6	1	3	8	16	3	7	2	5	16	14	13	7	14	15

PHOENIX
Environmental Laboratories, Inc.

Friday, April 06, 2018

Attn: Ms. Kim Wills
New England Bioassay
a Division of GZA GeoEnvironmental
77 Batson Drive
Manchester, CT 06040

Project ID: PATRIOT BEVERAGES
Sample ID#s: CA12228 - CA12231

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

Phyllis Shiller

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
UT Lab Registration #CT00007
VT Lab Registration #VT11301

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Telephone (860) 645-1102 Fax (860) 645-0823

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 06, 2018

FOR: Attn: Ms. Kim Wills
New England Bioassay
a Division of GZA GeoEnvironmental
77 Batson Drive
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WASTE WATER	Collected by:		04/02/18	
Location Code:	NEB	Received by:	CP	04/02/18	16:20
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	22205				

Laboratory Data

SDG ID: GCA12228
Phoenix ID: CA12228

Project ID: PATRIOT BEVERAGES
Client ID: EFFLUENT-1 C38-1786

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Aluminum	0.051	0.005	mg/L	1	04/04/18	MA	E200.7
Cadmium	< 0.0001	0.0001	mg/L	1	04/05/18	RS	SM3113B
Copper	< 0.0010	0.0010	mg/L	1	04/04/18	MA	E200.7
Hardness (CaCO3)	149	0.1	mg/L	1	04/04/18		E200.7
Nickel	0.029	0.001	mg/L	1	04/04/18	MA	E200.7
Lead	< 0.0003	0.0003	mg/L	1	04/05/18	RS	SM3113B
Zinc	0.018	0.001	mg/L	1	04/04/18	MA	E200.7
Alkalinity-CaCO3	884	5.00	mg/L	1	04/03/18	RR/EG	SM2320B-11
Conductivity	2180	5.00	umhos/cm	1	04/03/18	RR/EG	SM2510B-11
Ammonia as Nitrogen	0.19	0.05	mg/L	1	04/04/18	WHM	E350.1
Tot. Diss. Solids	1400	20	mg/L	2	04/04/18	H/KH	SM2540C-11
Tot. Org. Carbon	9.7	1.0	mg/L	2	04/05/18	RR/EG	SM5310B-11
Total Solids	1300	100	mg/L	10	04/03/18	KL/KH	SM2540B-11
Total Metals Digestion	Completed				04/03/18	AG	

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If there are any questions regarding this data, please call Phoenix Client Services.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller, Laboratory Director
April 06, 2018
Reviewed and Released by: Deb Lawrie, Project Manager

Ver 1

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 06, 2018

FOR: Attn: Ms. Kim Wills
New England Bioassay
a Division of GZA GeoEnvironmental
77 Batson Drive
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		04/02/18	
Location Code:	NEB	Received by:	CP	04/02/18	16:20
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	22205				

Laboratory Data

SDG ID: GCA12228
Phoenix ID: CA12229

Project ID: PATRIOT BEVERAGES
Client ID: RECEIVING WATER-1 C38-1787

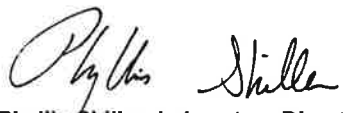
Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Aluminum	0.136	0.010	mg/L	1	04/05/18	MA	SW6010C/E200.7
Cadmium	< 0.0001	0.0001	mg/L	1	04/05/18	RS	SM3113B/SW7010-04
Copper	< 0.0020	0.0020	mg/L	1	04/05/18	MA	SW6010C/E200.7
Hardness (CaCO3)	42.0	0.1	mg/L	1	04/06/18		E200.7
Nickel	0.002	0.001	mg/L	1	04/05/18	MA	SW6010C/E200.7
Lead	< 0.0003	0.0003	mg/L	1	04/05/18	RS	SM3113B/SW7010-11
Zinc	0.007	0.002	mg/L	1	04/05/18	MA	SW6010C/E200.7
Alkalinity-CaCO3	20.6	5.00	mg/L	1	04/03/18	RR/EG	SM2320B-11
Conductivity	260	5.00	umhos/cm	1	04/03/18	RR/EG	SM2510B-11
Ammonia as Nitrogen	< 0.05	0.05	mg/L	1	04/04/18	WHM	E350.1
pH	7.02	1.00	pH Units	1	04/03/18 05:57	RR/EG	SM4500-H B-11
Tot. Org. Carbon	6.43	0.50	mg/L	1	04/04/18	RWR	SM5310B-11
Total Metals Digestion	Completed				04/04/18	AG	

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

If there are any questions regarding this data, please call Phoenix Client Services.
This report must not be reproduced except in full as defined by the attached chain of custody.



Phyllis Shiller, Laboratory Director
April 06, 2018
Reviewed and Released by: Deb Lawrie, Project Manager

Ver 1

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 06, 2018

FOR: Attn: Ms. Kim Wills
New England Bioassay
a Division of GZA GeoEnvironmental
77 Batson Drive
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WASTE WATER	Collected by:		04/02/18	
Location Code:	NEB	Received by:	CP	04/02/18	16:20
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	22205				

Laboratory Data

SDG ID: GCA12228
Phoenix ID: CA12230

Project ID: PATRIOT BEVERAGES
Client ID: EFFLUENT GRAB- 1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Chlorine Residual	0.02	0.02	mg/L	1	04/02/18 17:47	O	SM4500CLG-97
pH	8.49	1.00	pH Units	1	04/03/18 06:01	RR/EG	SM4500-H B-11

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for Chlorine is immediately. This Chlorine was performed in the laboratory and may be considered outside of hold-time.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
April 06, 2018
Reviewed and Released by: Deb Lawrie, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 06, 2018

FOR: Attn: Ms. Kim Wills
New England Bioassay
a Division of GZA GeoEnvironmental
77 Batson Drive
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		04/02/18	9:20
Location Code:	NEB	Received by:	CP	04/02/18	16:20
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	22205				

Laboratory Data

SDG ID: GCA12228
Phoenix ID: CA12231

Project ID: PATRIOT BEVERAGES
Client ID: SRCF LAB WATER C38-1789

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Aluminum	0.017	0.010	mg/L	1	04/05/18	MA	SW6010C/E200.7
Cadmium	< 0.0001	0.0001	mg/L	1	04/05/18	RS	SM3113B/SW7010-04
Copper	< 0.0020	0.0020	mg/L	1	04/05/18	MA	SW6010C/E200.7
Hardness (CaCO3)	49.2	0.1	mg/L	1	04/06/18		E200.7
Nickel	< 0.001	0.001	mg/L	1	04/05/18	MA	SW6010C/E200.7
Lead	< 0.0003	0.0003	mg/L	1	04/05/18	RS	SM3113B/SW7010-11
Zinc	< 0.002	0.002	mg/L	1	04/05/18	MA	SW6010C/E200.7
Alkalinity-CaCO3	35.0	5.00	mg/L	1	04/03/18	RR/EG	SM2320B-11
Conductivity	167	5.00	umhos/cm	1	04/03/18	RR/EG	SM2510B-11
Ammonia as Nitrogen	< 0.05	0.05	mg/L	1	04/05/18	WHM	E350.1
pH	7.38	1.00	pH Units	1	04/03/18 06:24	RR/EG	SM4500-H B-11
Tot. Org. Carbon	< 0.50	0.50	mg/L	1	04/04/18	RWR	SM5310B-11
Total Metals Digestion	Completed				04/04/18	AG	

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

If there are any questions regarding this data, please call Phoenix Client Services.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller, Laboratory Director
April 06, 2018
Reviewed and Released by: Deb Lawrie, Project Manager

Ver 1

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

April 06, 2018

QA/QC Data

SDG I.D.: GCA12228

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 424967 (mg/L), QC Sample No: CA12622 (CA12228)													
ICP Metals - Aqueous													
Aluminum	BRL	0.0050	0.044	0.0420	4.70	103			102			75 - 125	20
Copper	BRL	0.0025	0.011	0.0116	NC	102			100			75 - 125	20
Nickel	BRL	0.0005	<0.001	<0.0005	NC	96.3			93.3			75 - 125	20
Zinc	BRL	0.0010	0.003	0.0029	NC	96.4			93.8			75 - 125	20
QA/QC Batch 425138 (mg/L), QC Sample No: CA12623 (CA12229, CA12231)													
ICP Metals - Aqueous													
Aluminum	BRL	0.010	0.053	0.054	1.90	96.3			106			75 - 125	20
Copper	BRL	0.005	0.005	0.006	NC	102			106			75 - 125	20
Nickel	BRL	0.001	0.011	0.011	0	109			100			75 - 125	20
Zinc	BRL	0.002	0.032	0.033	3.10	104			103			75 - 125	20
QA/QC Batch 425098 (mg/L), QC Sample No: CA13667 (CA12228, CA12229, CA12231)													
Cadmium - Water	BRL	0.0001	0.0003	0.0003	NC	114			85.2			75 - 125	20
Lead (Furnace) - Water	BRL	0.001	0.0029	0.002	NC	108			98.1			75 - 125	20

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

April 06, 2018

QA/QC Data

SDG I.D.: GCA12228

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 424898 (mg/L), QC Sample No: CA11479 (CA12228, CA12229)													
Ammonia as Nitrogen	BRL	0.05	0.07	<0.05	NC	105			93.1			90 - 110	20
QA/QC Batch 424843 (mg/L), QC Sample No: CA12041 (CA12230)													
Chlorine Residual	BRL	0.02	<0.02	<0.02	NC	105							
QA/QC Batch 424907 (mg/L), QC Sample No: CA12068 (CA12228, CA12229)													
Alkalinity-CaCO3	BRL	5.00	27	30	NC	103						85 - 115	20
QA/QC Batch 424915 (umhos/cm), QC Sample No: CA12068 (CA12228, CA12229)													
Conductivity	BRL	5.00	571	573	0.30	93.1						85 - 115	20
Comment:													
Additional criteria matrix spike acceptance range is 75-125%.													
QA/QC Batch 424903 (pH), QC Sample No: CA12068 (CA12229, CA12230)													
pH			7.30	7.20	1.40	98.8						85 - 115	20
QA/QC Batch 424908 (mg/L), QC Sample No: CA12231 (CA12231)													
Alkalinity-CaCO3	BRL	5.00	35.0	33.8	3.50	102						85 - 115	20
QA/QC Batch 424916 (umhos/cm), QC Sample No: CA12231 (CA12231)													
Conductivity	BRL	5.00	167	173	3.50	96.9						85 - 115	20
Comment:													
Additional criteria matrix spike acceptance range is 75-125%.													
QA/QC Batch 424904 (pH), QC Sample No: CA12231 (CA12231)													
pH			7.38	7.48	1.30	98.7						85 - 115	20
QA/QC Batch 424927 (mg/L), QC Sample No: CA12232 (CA12228)													
Total Solids	BRL	10	770	760	1.30	101						85 - 115	20
QA/QC Batch 425042 (mg/L), QC Sample No: CA12623 (CA12231)													
Ammonia as Nitrogen	BRL	0.05	0.31	0.30	3.30	105			102			90 - 110	20
QA/QC Batch 425057 (mg/L), QC Sample No: CA12623 (CA12228)													
Tot. Diss. Solids	BRL	10	1600	1800	11.8	103						85 - 115	20
QA/QC Batch 425135 (mg/L), QC Sample No: CA12623 (CA12229, CA12231)													
Total Organic Carbon	BRL	1.0	1.9	1.8	NC	100			92.0			85 - 115	20
Comment:													
Additional criteria matrix spike acceptance range is 75-125%.													
QA/QC Batch 425376 (mg/L), QC Sample No: CA13396 (CA12228)													
Total Organic Carbon	BRL	1.0	3.1	3.1	NC	108			100			85 - 115	20
Comment:													
Additional criteria matrix spike acceptance range is 75-125%.													

QA/QC Data

SDG I.D.: GCA12228

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller

Phyllis Shiller, Laboratory Director
April 06, 2018

Friday, April 06, 2018

Criteria: None

State: CT

Sample Criteria Exceedances Report

GCA12228 - NEB

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac
NY # 11301

Analysis Comments

April 06, 2018 SDG I.D.: GCA12228

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

PHOENIX
Environmental Laboratories, Inc.

CHAIN OF CUSTODY RECORD

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: service@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Temp 2.4 WCIP Pg of

Data Delivery (check one):
☐ Fax #:
☒ Email: kimberly.wills@gza.com
Format: ☐ Excel ☐ Pdf ☐ Gis Key

Customer: New England Bioassay
Address: 77 Batson Drive
Manchester, CT 06042

Project: Patriot Beverages
Report to: Kim Wills
Invoice to: Kim Wills

Project P.O: 22205
Phone #: 860-643-9560
Fax #: 860-646-7169

Client Sample - Information - Identification

Sampler's Signature _____ Date _____

Matrix Code:
DW=drinking water **WW**=wastewater **S**=soil/solid **O**=other
GW=groundwater **SL**=sludge **A**=air

Analysis Request

Phoenix Sample #	Customer Sample Identification	Matrix	Date Sampled	Time Sampled	Hardness (0.5 mg/L)	Alkalinity (2.0 mg/L)	Specific Conductance (--)	Total Solids (--)	Total Dissolved Solids (--)	Ammonia (0.1 mg/L)	Total Organic Carbon (0.5 mg/L)	Cd (AA), Pb (AA), Cu, Zn, Ni, Al	Total Residual Chlorine (0.02 mg/L)	pH (--)	Soil VOA Vials [ ] methanol [ ] Sod Bisulfate	GL Soil container ( ) oz	PL As is 250 ml	PL 120ml As is	GL Amber 120ml [ ] As is [X] 802	PL As is [X] 500ml [ ] 1000ml	PL H2SO4 [X] 250ml [ ] 1000ml	PL HNO3 [X] 250ml [ ] 1000ml	PL NaOH 250ml	Bacteria Bottle
12221	Effluent-1 C38-1786	WW			X	X	X	X	X	X	X	X							1	1	1	1		
12224	Receiving Water-1 C38-1787	O			X	X	X			X	X	X		X					1	1	1	1		
12230	Effluent grab-1	WW											X	X			1							
12231	SRCF lab water C38-1789	O	4/12/18	0920	X	X	X			X	X	X		X					1	1	1	1		

Relinquished by:	Accepted by:	Date:	Time:
		4-12-18	1550
		4-13-18	16:20

Comments, Special Requirements or Regulations:
*NO date/time on bottles (TT)
Please see detection limits (MLs) listed next to each parameter above. Metals MLs are listed below:

Cd - 0.0005 mg/L; Pb - 0.0005 mg/L; Cu - 0.003 mg/L; Zn - 0.005 mg/L; Ni - 0.005 mg/L; Al - 0.02 mg/L

Please CC: Melanie.Cruff@gza.com and Robin.Faulk@gza.com on reports

Turnaround:
☐ 1 Day*
☐ 2 Days*
☐ 3 Days*
☒ Standard
☐ Other

* Surcharge Applies

Requirements for CT
☐ Res. Criteria
☐ GW Protection
☐ GA Mobility
☐ GB Mobility
☐ SW Protection
☐ Res. Vol.
☐ Ind. Vol.

Requirements for MA
☐ GW-1
☐ GW-2
☐ GW-3
☐ S-1
☐ S-2
☐ S-3
☐ MCP Certification
☐ Other

PHOENIX
Environmental Laboratories, Inc.

Tuesday, April 10, 2018

Attn: Ms. Kim Wills
New England Bioassay
a Division of GZA GeoEnvironmental
77 Batson Drive
Manchester, CT 06040

Project ID: PATRIOT BEVERAGES
Sample ID#s: CA14129 - CA14131

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

Phyllis Shiller

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
UT Lab Registration #CT00007
VT Lab Registration #VT11301

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Telephone (860) 645-1102 Fax (860) 645-0823

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 10, 2018

FOR: Attn: Ms. Kim Wills
New England Bioassay
a Division of GZA GeoEnvironmental
77 Batson Drive
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WASTE WATER	Collected by:		04/04/18	7:00
Location Code:	NEB	Received by:	SW	04/04/18	16:45
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	22205				

Laboratory Data

SDG ID: GCA14129
Phoenix ID: CA14129

Project ID: PATRIOT BEVERAGES
Client ID: EFFLUENT-2 C38-1806

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Ammonia as Nitrogen	0.78	0.05	mg/L	1	04/09/18	WHM	E350.1

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If there are any questions regarding this data, please call Phoenix Client Services.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller, Laboratory Director
April 10, 2018
Reviewed and Released by: Deb Lawrie, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 10, 2018

FOR: Attn: Ms. Kim Wills
New England Bioassay
a Division of GZA GeoEnvironmental
77 Batson Drive
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WASTE WATER	Collected by:		04/04/18	6:45
Location Code:	NEB	Received by:	SW	04/04/18	16:45
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	22205				

Laboratory Data

SDG ID: GCA14129
Phoenix ID: CA14130

Project ID: PATRIOT BEVERAGES
Client ID: RECEIVING WATER-2 C38-1807

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Ammonia as Nitrogen	0.07	0.05	mg/L	1	04/09/18	WHM	E350.1

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If there are any questions regarding this data, please call Phoenix Client Services.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller, Laboratory Director
April 10, 2018
Reviewed and Released by: Deb Lawrie, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 10, 2018

FOR: Attn: Ms. Kim Wills
New England Bioassay
a Division of GZA GeoEnvironmental
77 Batson Drive
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WASTE WATER	Collected by:		04/04/18	7:00
Location Code:	NEB	Received by:	SW	04/04/18	16:45
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	22205				

Laboratory Data

SDG ID: GCA14129
Phoenix ID: CA14131

Project ID: PATRIOT BEVERAGES
Client ID: EFFLUENT-2

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Chlorine Residual	0.05	0.02	mg/L	1	04/04/18 19:37	O	SM4500CLG-97
pH	8.51	1.00	pH Units	1	04/04/18 20:34	RR/EG	SM4500-H B-11

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The regulatory hold time for Chlorine is immediately. This Chlorine was performed in the laboratory and may be considered outside of hold-time.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
April 10, 2018
Reviewed and Released by: Deb Lawrie, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

April 10, 2018

QA/QC Data

SDG I.D.: GCA14129

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 425157 (mg/L), QC Sample No: CA13661 (CA14131)													
Chlorine Residual	BRL	0.02	<0.01	<0.02	NC	104							
QA/QC Batch 425399 (mg/L), QC Sample No: CA13984 (CA14129, CA14130)													
Ammonia as Nitrogen	BRL	0.05	0.17	0.17	NC	97.3			105			90 - 110	20

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
April 10, 2018

Tuesday, April 10, 2018

Criteria: None

State: MA

Sample Criteria Exceedances Report

GCA14129 - NEB

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac
NY # 11301

Analysis Comments

April 10, 2018

SDG I.D.: GCA14129

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

PHOENIX
Environmental Laboratories, Inc.

CHAIN OF CUSTODY RECORD

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: service@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Temp 2.1 Pg of

Data Delivery (check one):
- ☐ Fax #:
- ☒ Email: kimberly.wills@gza.com

Format: ☐ Excel ☐ Pdf ☐ Gis Key

Customer: New England Bioassay
Address: 77 Batson Drive
Manchester, CT 06042

Project: Patriot Beverages (MA)
Report to: Kim Wills
Invoice to: Kim Wills

Project P.O: 22205
Phone #: 860-643-9560
Fax #: 860-646-7169

Client Sample - Information - Identification

Sampler's Signature _____ Date _____

Matrix Code:
DW=drinking water WW=wastewater S=soil/solid O=other
GW=groundwater SL=sludge A=air

Analysis Request

Phoenix Sample #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	Ammonia (0.1 mg/L)	pH (-)	Total Residual Chlorine (0.02 mg/L)	Soil VOA Vials [ ] methanol [ ] Sod Bisulfate	GL Soil container ( ) oz	PL As is 250 ml	PL As is 120ml	GL Amber 250ml [ ] As is [ ] H2SO4	PL As is 1000ml	PL H2SO4 [X] 250ml [ ] 1000ml	PL HNO3 [ ] 250ml [ ] 1000ml	PL NaOH 250ml	Bacteria Bottle
14129	Effluent-2 C38-1806	WW	4/3-4/18	0700-0700	X								1				
14130	Receiving Water-2 C38-1807	O	4/4/18	0645	X								1				
14131	Effluent Grab - 2	WW	4/4/18	0700		X	X			1							

Relinquished by:	Accepted by:	Date:	Time:
		4-4-18	1625
	Krystal Bruce	4-4-18	10:45

Comments, Special Requirements or Regulations:

Please see detection limits (MLs) listed next to each parameter above

Please CC: Melanie.Cruff@gza.com and Robin.Faulk@gza.com on reports

Turnaround:
- ☐ 1 Day*
- ☐ 2 Days*
- ☐ 3 Days*
- ☒ Standard
- ☐ Other

* Surcharge Applies

Requirements for CT
- ☐ Res. Criteria
- ☐ GW Protection
- ☐ GA Mobility
- ☐ GB Mobility
- ☐ SW Protection
- ☐ Res. Vol.
- ☐ Ind. Vol.

Requirements for MA
- ☐ GW-1
- ☐ GW-2
- ☐ GW-3
- ☐ S-1
- ☐ S-2
- ☐ S-3
- ☐ MCP Certification
- ☐ Other

NEB Issued:5/3/2018

PHOENIX
Environmental Laboratories, Inc.

Thursday, April 12, 2018

Attn: Ms. Kim Wills
New England Bioassay
a Division of GZA GeoEnvironmental
77 Batson Drive
Manchester, CT 06040

Project ID: PATRIOT BEVERAGES
Sample ID#s: CA15772 - CA15774

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

Phyllis Shiller

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
UT Lab Registration #CT00007
VT Lab Registration #VT11301

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Telephone (860) 645-1102 Fax (860) 645-0823

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 12, 2018

FOR: Attn: Ms. Kim Wills
New England Bioassay
a Division of GZA GeoEnvironmental
77 Batson Drive
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WASTE WATER	Collected by:		04/06/18	8:00
Location Code:	NEB	Received by:	CP	04/06/18	16:34
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	22205				

Laboratory Data

SDG ID: GCA15772
Phoenix ID: CA15772

Project ID: PATRIOT BEVERAGES
Client ID: EFFLUENT-3 C38-1829

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Ammonia as Nitrogen	0.60	0.05	mg/L	1	04/11/18	WHM	E350.1

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If there are any questions regarding this data, please call Phoenix Client Services.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller

Phyllis Shiller, Laboratory Director
April 12, 2018
Reviewed and Released by: Deb Lawrie, Project Manager

Ver 1

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 12, 2018

FOR: Attn: Ms. Kim Wills
New England Bioassay
a Division of GZA GeoEnvironmental
77 Batson Drive
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WASTE WATER	Collected by:		04/06/18	7:30
Location Code:	NEB	Received by:	CP	04/06/18	16:34
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	22205				

Laboratory Data

SDG ID: GCA15772
Phoenix ID: CA15773

Project ID: PATRIOT BEVERAGES
Client ID: RECEIVING WATER-3 C38-1830

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Ammonia as Nitrogen	0.15	0.05	mg/L	1	04/11/18	WHM	E350.1

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If there are any questions regarding this data, please call Phoenix Client Services.
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Phyllis Shiller, Laboratory Director
April 12, 2018
Reviewed and Released by: Deb Lawrie, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 12, 2018

FOR: Attn: Ms. Kim Wills
New England Bioassay
a Division of GZA GeoEnvironmental
77 Batson Drive
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WASTE WATER	Collected by:		04/06/18	8:00
Location Code:	NEB	Received by:	CP	04/06/18	16:34
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	22205				

Laboratory Data

SDG ID: GCA15772
Phoenix ID: CA15774

Project ID: PATRIOT BEVERAGES
Client ID: EFFLUENT GRAB-3

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Chlorine Residual	< 0.02	0.02	mg/L	1	04/06/18 18:31	O	SM4500CLG-97
pH	7.80	1.00	pH Units	1	04/06/18 22:46	BS/EG	SM4500-H B-11

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The regulatory hold time for Chlorine is immediately. This Chlorine was performed in the laboratory and may be considered outside of hold-time.

If there are any questions regarding this data, please call Phoenix Client Services.
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QA/QC Report

April 12, 2018

QA/QC Data

SDG I.D.: GCA15772

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 425499 (mg/L), QC Sample No: CA15282 (CA15774)													
Chlorine Residual	BRL	0.02	<0.02	<0.02	NC	104							
QA/QC Batch 425525 (pH), QC Sample No: CA15352 (CA15774)													
pH			6.22	6.10	1.90	98.5						85 - 115	20
Comment:													
Additional: LCS acceptance range is 85-115% MS acceptance range 75-125%.													
QA/QC Batch 425733 (mg/L), QC Sample No: CA15563 (CA15772, CA15773)													
Ammonia as Nitrogen	BRL	0.05	0.08	0.08	NC	99.7			95.7			90 - 110	20

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
April 12, 2018

Thursday, April 12, 2018

Criteria: None

State: MA

Sample Criteria Exceedances Report

GCA15772 - NEB

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

PHOENIX

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587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac
NY # 11301

Analysis Comments

April 12, 2018

SDG I.D.: GCA15772

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

PHOENIX
Environmental Laboratories, Inc.

CHAIN OF CUSTODY RECORD

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: service@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

040CIP

Temp 1.1 Pg of

Data Delivery (check one):
☐ Fax #:
☒ Email: kimberly.wills@gza.com
Format: ☐ Excel ☐ Pdf ☐ Gis Key

Customer: New England Bioassay
Address: 77 Batson Drive
Manchester, CT 06042

Project: Patriot Beverages (MA)
Report to: Kim Wills
Invoice to: Kim Wills

Project P.O: 22205
Phone #: 860-643-9560
Fax #: 860-646-7169

Client Sample - Information - Identification

Sampler's Signature _____ Date _____

Matrix Code:
DW=drinking water **WW**=wastewater **S**=soil/solid **O**=other
GW=groundwater **SL**=sludge **A**=air

Analysis Request

Phoenix Sample #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	Ammonia (0.1 mg/L)	pH (–)	Total Residual Chlorine (0.02 mg/L)	Soil VOA Vials [ ] methanol [ ] Sod Bisulfate	GL Soil container ( ) oz	PL As Is 250 ml	PL As Is 120ml	GL Amber 250ml [ ] As is [ ] H2SO4	PL As is 1000ml	PL H2SO4 [X] 250ml [ ] 1000ml	PL HNO3 [ ] 250ml [ ] 1000ml	PL NaOH 250ml	Bacteria Bottle
15772	Effluent-3 C38-1829	WW	4/5-6/18	0800-0800	X								1				
15773	Receiving Water-3 C38-1830	O	4/6/18	0730	X								1				
15774	Effluent Grab - 3		4/6/18	0800		X	X			1							

Relinquished by:	Accepted by:	Date:	Time:
		4-6-18	1605
		4-6-18	16:34

Comments, Special Requirements or Regulations:

Please see detection limits (MLs) listed next to each parameter above

Please CC: Melanie.Cruff@gza.com and Robin.Faulk@gza.com on reports

Turnaround:
☐ 1 Day*
☐ 2 Days*
☐ 3 Days*
☒ Standard
☐ Other

* Surcharge Applies

Requirements for CT
☐ Res. Criteria
☐ GW Protection
☐ GA Mobility
☐ GB Mobility
☐ SW Protection
☐ Res. Vol.
☐ Ind. Vol.

Requirements for MA
☐ GW-1
☐ GW-2
☐ GW-3
☐ S-1
☐ S-2
☐ S-3
☐ MCP Certification
☐ Other

NEW ENGLAND BIOASSAY - CHAIN-OF-CUSTODY

EFFLUENT

Sampler: Jim DRAPEAU
Title: CHIEF OP. WWTP
Facility: Patriot Beverages

Sampling Method: X **Composite**
Sample ID: OUTFALL 001
Start Date: 4/1/18 Time: 0700
End Date: 4/2/18 Time: 0700

Sampling Method: X **Grab** (for pH and TRC only X)
Date Collected: 4/2/18
Time Collected: 0700

Sample Type:
____ Prechlorinated
____ Dechlorinated
X Unchlorinated
____ Chlorinated

RECEIVING WATER Sample set #1

Sampler: Jim DRAPEAU
Title: CHIEF OP WWTP
Facility: Patriot Beverages

Sampling Method: X Grab
Sample ID: Reedy Meadow Brook
Date Collected: 4/2/18
Time Collected: 0730

Received
ON ICE

Effluent Sampling Location and Procedures:

Receiving Water Sampling Location and Procedures:

Requested Analysis: X Chronic and modified acute

Sample Shipment

Method of Shipment: NEB Courier

Relinquished By: Jim DRAPEAU Date: 4/2/18 Time: 9:18 AM
Received By: [signature] Date: 4/2/18 Time: 9:18 AM
Rel. By: [signature] 4/2/18 11:28AM
Rec [signature] 4/2/18 @ 1141

Optional Information

Purchase Order # to reference on invoice:

FOR NEB USE ONLY

*** Please return all ice packs NEB has provided to insure accurate temperature upon receipt to the NEB laboratory.**

Temperature of Effluent Upon Receipt at Lab: 3.3 °C
Temperature of Receiving Water Upon Receipt at Lab: 2.4 °C

Effluent COC# C38-1786
Receiving Water COC# C38-1787

IF THIS COOLER IS MISPLACED OR THE LABEL IS LOST, PLEASE SHIP TO:
KIM WILLS, NEW ENGLAND BIOASSAY MANCHESTER, CT 06042

NEW ENGLAND BIOASSAY - CHAIN-OF-CUSTODY

Sample Set #2

EFFLUENT

Sampler: Jim Drapeau
Title: Chief Op WWTP
Facility: Patriot Beverages

Sampling Method: X **Composite**
Sample ID: OUTFALL 001
Start Date: 4/3/18 Time: 0700
End Date: 4/4/18 Time: 0700

Sampling Method: X **Grab** (for pH and TRC only X)
Date Collected: 4/4/18
Time Collected: 0700

Sample Type:
___ Prechlorinated
___ Dechlorinated
X Unchlorinated
___ Chlorinated

RECEIVING WATER

Sampler: Jim Drapeau
Title: Chief Op WWTP
Facility: Patriot Beverages

Sampling Method: X Grab
Sample ID: Reedy Meadow Brook
Date Collected: 4/4/18
Time Collected: 0645

Effluent Sampling Location and Procedures:

Receiving Water Sampling Location and Procedures:

Received
ON ICE

Requested Analysis: X Chronic and modified acute

Sample Shipment

Method of Shipment: NEB Courier

Relinquished By: Jim Drapeau Date: 4/4/18 Time: 0930
Received By: Chris Rau Date: 4/4/18 Time: 0930
RLQ Chris Rau 4/4/18 1130

Optional Information

Received: 4/4/18 1130
Purchase Order # to reference on invoice:

FOR NEB USE ONLY

*** Please return all ice packs NEB has provided to insure accurate temperature upon receipt to the NEB laboratory.**

Temperature of Effluent Upon Receipt at Lab: 4.2 °C
Effluent COC# C38-1806

Temperature of Receiving Water Upon Receipt at Lab: 3.5 °C
Receiving Water COC# C38-1807

IF THIS COOLER IS MISPLACED OR THE LABEL IS LOST, PLEASE SHIP TO:
KIM WILLS, NEW ENGLAND BIOASSAY MANCHESTER, CT 06042

NEW ENGLAND BIOASSAY - CHAIN-OF-CUSTODY

Sample Set #3

EFFLUENT

Sampler: Jim DRAPEAU
Title: CHIEF OP WWTF
Facility: Patriot Beverages

Sampling Method: X **Composite**
Sample ID: OUTFALL 001
Start Date: 4/5/18 Time: 0800
End Date: 4/6/18 Time: 0800

Sampling Method: X **Grab** (for pH and TRC only X)
Date Collected: 4/6/18
Time Collected: 0800

Sample Type:
___ Prechlorinated
___ Dechlorinated
X Unchlorinated
___ Chlorinated

RECEIVING WATER

Sampler: Jim Drapeau
Title: CHIEF OP - WWTF
Facility: Patriot Beverages

Sampling Method: X Grab
Sample ID: Reedy Meadow Brook
Date Collected: 4/6/18
Time Collected: 0730

Effluent Sampling Location and Procedures:

Receiving Water Sampling Location and Procedures:

Requested Analysis: X Chronic and modified acute

Sample Shipment

Method of Shipment: NEB Courier
Relinquished By: Jim Drapeau Date: 4/6/18 Time: 9:06
Received By: Date: 4/6/18 Time: 9:06
Rel. by: 4/6/18 10:38
Recd By: 4/6/18 Received 1038
ON ICE

Optional Information

Purchase Order # to reference on invoice:

FOR NEB USE ONLY

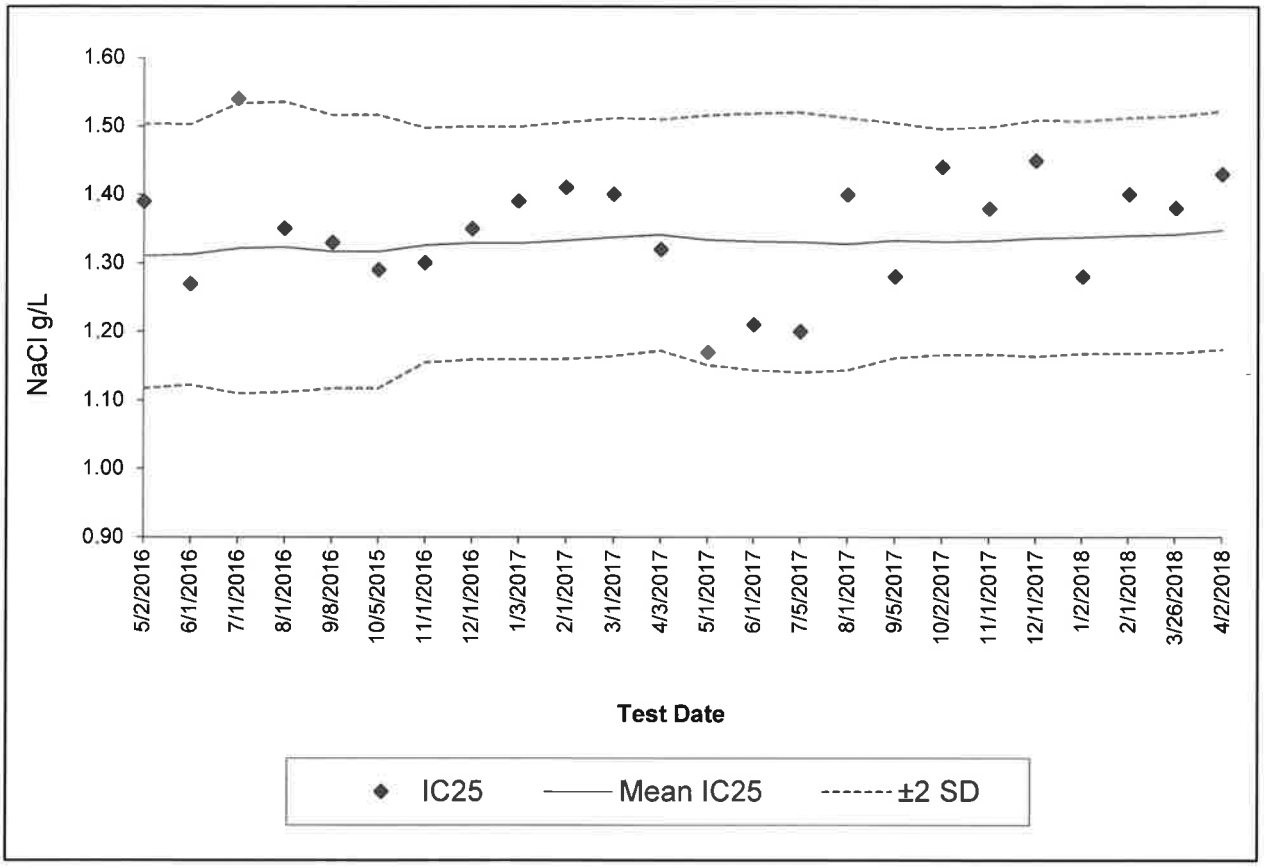
*** Please return all ice packs NEB has provided to insure accurate temperature upon receipt to the NEB laboratory.**

Temperature of Effluent Upon Receipt at Lab: 2.9 °C
Temperature of Receiving Water Upon Receipt at Lab: 1.8 °C
Effluent COC# C38-1829
Receiving Water COC# C38-1830

IF THIS COOLER IS MISPLACED OR THE LABEL IS LOST, PLEASE SHIP TO:
KIM WILLS, NEW ENGLAND BIOASSAY MANCHESTER, CT 06042

New England Bioassay

Reference Toxicant Data: Sodium chloride (NaCl) *Pimephales promelas* 7-day Chronic Growth IC_{25}



Test ID	Date	IC_{25}	Mean IC_{25}	STD	-2STD	+2STD	Avg. CV	Growth PMSD (%)	Avg. PMSD (%)
16-597	5/2/2016	1.39	1.31	0.10	1.12	1.50	0.07	4.37	7.69
16-708	6/1/2016	1.27	1.31	0.10	1.12	1.50	0.07	8.95	7.94
16-881	7/1/2016	1.54	1.32	0.11	1.11	1.53	0.08	18.90	9.77
16-1064	8/1/2016	1.35	1.32	0.11	1.11	1.54	0.08	13.90	10.36
16-1259	9/8/2016	1.33	1.32	0.10	1.12	1.52	0.08	6.85	9.92
16-1473	10/5/2015	1.29	1.32	0.10	1.12	1.52	0.08	10.54	9.99
16-1593	11/1/2016	1.30	1.33	0.09	1.16	1.50	0.06	6.87	9.68
16-1735	12/1/2016	1.35	1.33	0.09	1.16	1.50	0.06	7.89	9.51
17-15	1/3/2017	1.39	1.33	0.08	1.16	1.50	0.06	6.16	9.24
17-152	2/1/2017	1.41	1.33	0.09	1.16	1.51	0.06	9.65	9.27
17-268	3/1/2017	1.40	1.34	0.09	1.16	1.51	0.06	20.53	10.07
17-481	4/3/2017	1.32	1.34	0.08	1.17	1.51	0.06	7.47	9.90
17-617	5/1/2017	1.17	1.33	0.09	1.15	1.52	0.07	10.74	9.95
17-765	6/1/2017	1.21	1.33	0.09	1.14	1.52	0.07	7.41	9.80
17-973	7/5/2017	1.20	1.33	0.09	1.14	1.52	0.07	10.39	9.83
17-1147	8/1/2017	1.40	1.33	0.09	1.14	1.51	0.07	11.35	9.91
17-1318	9/5/2017	1.28	1.33	0.09	1.16	1.50	0.06	13.74	10.11
17-1522	10/2/2017	1.44	1.33	0.08	1.17	1.50	0.06	10.36	10.12
17-1696	11/1/2017	1.38	1.33	0.08	1.17	1.50	0.06	9.27	10.08
17-1809	12/1/2017	1.45	1.34	0.09	1.16	1.51	0.06	26.17	10.78
18-11	1/2/2018	1.28	1.34	0.09	1.17	1.51	0.06	6.16	10.59
18-184	2/1/2018	1.40	1.34	0.09	1.17	1.51	0.06	10.52	10.51
18-416	3/26/2018	1.38	1.34	0.09	1.17	1.51	0.06	9.14	10.49
18-472	4/2/2018	1.43	1.35	0.09	1.17	1.52	0.06	6.25	10.57

National 75th Percentile and 90th Percentile CV Averages for Fathead Growth IC25 (EPA 833-R-00-003): 0.38 - 0.45
PMSD Upper and Lower Bounds for Fathead Growth (EPA-821-R-02-013): 12% - 30%